

Day : **Thursday**  
Date : **03/05/2018**

Time : **10.00 AM TO 01.00 PM**  
Max. Marks : 80.

**S-2018-3974**

**N.B.:**

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from Section-I and any **TWO** questions from Section-II.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

**SECTION-I**

- Q.1** Answer any **FIVE** of the following: **(10)**
- a) What is a palindrome?
  - b) Define mutation in DNA.
  - c) Give life cycle of T4 phage.
  - d) Write the differences in prokaryote and eukaryote.
  - e) What are  $f^+$  and  $f^-$  bacteria?
  - f) Enlist five rDNA products.
  - g) What is reverse transcriptase?
- Q.2** Describe transduction and write a note on significance of DNA transfer. **(15)**
- Q.3** Discuss the role of biotechnology in pharmaceutical sciences. **(15)**
- Q.4** Write short notes on any **THREE** of the following: **(15)**
- a) Replication of lagging strand
  - b) EtBr
  - c) Watson and Crick's model of DNA
  - d) Thermal cycler
  - e) Southern blotting technique

**SECTION-II**

- Q.5** Answer any **FIVE** of the following: **(10)**
- a) What is strain improvement?
  - b) Give applications of enzyme in textile industry
  - c) What is fermentation media?
  - d) Draw a diagram of tubular flow reactor.
  - e) What is disulfide bond in protein?
  - f) Define enzyme.
  - g) What is a single cell protein?
- Q.6** What are objectives of protein engineering? **(15)**
- Q.7** What are bioreactors? Describe a fed-batch reactor. **(15)**
- Q.8** Write short notes on any **THREE** of the following: **(15)**
- a) Applications of amylase
  - b) Lyophilization
  - c) Site directed mutagenesis
  - d) Enzyme immobilization
  - e) Parameters affecting enzyme activity